

WHITE PAPER

THE LEGAL ASPECTS OF 3D PRINTING

from a European perspective



Source: https://en.wikipedia.org/wiki/User:Swaedo/sandbox#/media/File:Printing_with_a_3D_printer_at_Makers_Party_Bangalore_2013_11.JPG

Summary: *This white paper discusses the extent to which current laws and regulations address legal issues raised in the wake of the rapid development in the area of 3D printing. The emphasis lies on the issues that arise from intellectual property law (IP), and more specifically copyright law, patent law, design rights law, and trademark law. In addition to these IP issues, this white paper also discusses the doctrine of product liability as it relates to 3D printing.*

Authors: *This white paper is issued by De Clercq Advocaten Notarissen, a law firm based in The Netherlands. De Clercq's specialized attorneys have a deep understanding of the legal aspects of new technologies, including and specifically as regards 3D printing, and a broad experience with legal advice and litigation.*

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1. Introduction

Various studies show that 3D printing is rapidly becoming ‘the next big thing’. Media references to Additive Manufacturing, Rapid Prototyping or 3D printing as “*the next trillion dollar industry*” are becoming increasingly common. For example, a recent study established that, by 2020, the 3D printing market will be worth more than USD 17 billion.

Although 3D printing undeniably offers many opportunities, the technology also raises many questions. This white paper discusses the extent to which current laws and regulations address these issues and identifies the issues that require additional attention. The emphasis will lie on the issues that arise from intellectual property law. Copyright

law, patent law, design rights, and trademark law are then discussed, in that order. In addition to these IP issues, this white paper also discusses the doctrine of product liability as it relates to 3D printing. This white paper aims to approach all of these issues from a practical point of view: what are the risks and how can one minimize these risks?

Given the scope and complexity of the topic, this white paper only discusses the most significant issues, and does so based on Dutch law and regulations. As Dutch law is mostly implemented based on European Directives and Regulations, the legal framework in many other European countries will be consistent with the legal framework based on Dutch law.

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2. Intellectual Property

The rise of 3D printing technology empowers consumers and businesses to create objects previously unimagined. Some of these objects might however be protected by intellectual property rights ('IP rights'). When objects are 3D printed or copied without permission of the original IP right holder, there is a distinct possibility of infringing upon these IP rights.

The term IP refers to creations of the intellect for which a monopoly is assigned to designated owners by law. These IP rights include patents, design rights, trademarks, copyrights and related rights (rights of the performers, producers and broadcasting organizations). IP rights usually give the creator an exclusive right over the use of his creation for a certain period of time.

According to the World Intellectual Property Organization (WIPO), IP rights serve one basic purpose, namely: *"to foster an environment in which creativity and innovation can flourish."* IP rights create an incentive for innovation, as the creator is granted a monopoly to exploit his creation for usually a limited period of time.

IP rights play a major role in relation to 3D printing. Greater availability and affordability of 3D printers sparked a development that The Economist referred to as the *"third industrial revolution"*. 3D printing enables any party to print almost

anything imaginable, thus making it possible to infringe on existing IP rights on a large scale. In the end, all that is needed to produce a certain product is a 3D printer, raw materials (such as the 'filament'), a digital design (the CAD file) and a computer with installed software.

"Research and consultancy company Gartner even predicted that 3D printing would cause holders of IP rights to lose at least USD 100 billion in revenue in 2018."

The implications of this new technology for IP rights are not just theoretical issues. Many parties who hold IP rights already report infringement through 3D printing. Research and consultancy company Gartner even predicted that 3D printing would cause holders of IP rights to lose at least USD 100 billion in revenue in 2018. If Gartner's prediction turns out to be accurate, the rise of 3D printing will have a tipping-point impact upon the business models of all parties involved, much like the rise of file sharing software radically changed the music and movie industry in the course of the last two decades.

3. Copyright law

3.1 How to prevent liability

Arguably the majority of IP rights qualify as copyright. A copyright is often defined as a legal device that gives the creator of a literary, artistic, musical, or other creative work the sole right to publish and sell such said work. A copyright applies

to works that are regarded to be the author's "own intellectual creation". Though some countries require certain copyright formalities to establishing copyright, most countries (including all EU countries) recognize copyright in any work that is the author's "own intellectual creation", without any formal registration required. In the EU, the duration of a copyright is the author's life plus 70 years.

As a vast majority of 3D printed objects are protected by a copyright, copyright infringement can easily rear its ugly head. Parties who 3D print objects upon customer request, are especially advised to make sure the object and/or the CAD file do not infringe upon any third party rights, or at least that liability for infringement lies with the customer. It is therefore essential to have legally-binding General Conditions and other contractual provisions in place, by means of which liability for infringement is shifted from the contractor to the assignor (the customer). Waivers and disclaimers specifically aimed at 3D printing are an important instrument in preventing liability for contractors.

These contractual provisions should not only cover possible damages that the contractor would have to pay to third parties, but should also cover the costs of litigation in case of alleged infringement.

3.2 How to prevent infringement

For copyright holders it is not only essential to make sure not to infringe on any third party rights, but also to

prevent other parties from infringing on their rights as a copyright holder. A copyright holder who is confronted with third parties infringing on its rights, can take several legal actions against the infringing party. If no amicable solutions can be reached, the matter can be brought to a civil court, and – among others – permanent injunctions and damages can be claimed.

However, the past decades have taught an important lesson when it comes to contesting infringing parties. Typically there is a vast number of infringers, thus it is practically impossible to effectively defend one's rights against all these infringers. The most expeditious option would seem to be focusing on intermediaries, such as the platforms that offer infringing CAD files. That stated, the role of such intermediaries is likely to shrink as it becomes easier to create a CAD file of an existing work, for example by using 3D scanners.

Though right holders have instruments available to combat infringement, the saying 'prevention is better than cure' applies here too. Right holders are therefore advised to proactively manage their IP rights in order to prevent other parties from infringing on these rights. Although technology such as Digital Rights Management (DRM) could play a role, in the long run these types of solutions might turn out to be no more effective than the proverbial drop of water on a hot plate.

The most advisable option would seem to be to follow the music and film industries' lead and develop new business models, such as one that includes a customer-friendly platform that offers authorized CAD files for a reasonable price. Netflix, Spotify, and iTunes could serve as examples of such platforms.

3.3 Private copy exception

Generally speaking, copyright holders cannot take legal action against private individuals who utilize 3D printing for their own private use. European copyright legislation contains an exception or limitation for reproductions made by a natural person for private use and for non-commercial ends. This means that a private individual is allowed to 3D print a copyright protected work without first obtaining permission from the copyright holder. Furthermore, a private individual is allowed to obtain copyright protected CAD files without permission of the IP right holder. However, a recent judgment rendered by the European Court of Justice makes it clear that downloading CAD files from an illegal source is prohibited, even if the file is intended for private use.

The answer to the question whether or not a commercial party printing upon a private individual's request can invoke the private copying exception, is somewhat ambiguous and may vary per country. As pointed out, the private individual is allowed to make a 3D print of a copyright protected work for private use and for non-commercial ends. However, a third party printing for a

private individual typically is a commercial undertaking. Applying the existing legislation to this new reality seems to create a peculiar situation: a third party that operates commercially may produce a 3D printout of a copyright-protected physical object, but might not be allowed to create a digital object, like a CAD file, of that same physical object.

This situation demonstrates that relatively old legislation cannot always provide a satisfactory answer to new questions. This of course can lead to legal uncertainty, which on its turn could be hindering progress and innovation.

Another example of such a inconsistency between 'old' legislation and new technologies, is the fact that regarding digital copies, a fair compensation has been incorporated in the digital copy exception. European law requires member states who create a private copy exception, to also include a form of fair compensation for the income IP right holders lose as a result of the private copying exception. Regarding digital copies, the Dutch legislator has introduced private copying levies on empty data carriers, such as DVDs and hard disks.

Despite this European requirement, no compensation has been built into the physical private copying exception – at least not yet. According to the Dutch legislature, incorporating a fair compensation was unnecessary, given the

"negligible interests and amounts" involved. It has become obvious, however, that the emergence of 3D printing has made *"negligible interests and amounts"* a thing of the past.

From a strict legal perspective, the legislator is required to adopt a compensation system for physical copies as well. However, it is difficult to imagine how, as a practical matter, private copying compensation relating to 3D printing could be structured. The first question that arises is how that compensation would be charged. Should a levy be imposed on 3D printers, filament, CAD files, or on something or someone else? The second question is how the payments would have to be divided among the very broad range of holders of IP rights. As a practical matter it seems that the current compensation system would be difficult to apply to the new situation created by the rise of 3D printing.

4. Patent law

4.1 Direct infringement

A patent is defined as a set of exclusive rights granted by a sovereign state to an inventor or assignee for a limited period of time in exchange for detailed public disclosure of that invention. An invention is a solution to a specific technological problem, which can be a product or a process. Other than a copyright, a patent right can only come into existence through registration of the invention. By

granting the inventor a temporary monopoly in exchange for a description of how to construct or achieve the invention, patents play an important role in catalyzing innovation.

Naturally, 3D printed objects could be infringing on existing patents. This risk becomes even larger when printing for third parties. Again, it is therefore essential to have legally-binding General Conditions and other contractual provisions in place, by means of which liability for infringement is shifted from the contractor to the assignor (the customer).

Like copyright law, patent law also includes an exception for private use. Generally speaking, European patent law only offers patent holders protection against acts the infringing party commits *"in or for its business"*. Case law shows that the word *"business"* is interpreted broadly; the organization need not be intended to generate profit or achieve commercial goals. This means that patent holders have no remedy with regard to 3D printouts of a patented product used for private, non-commercial purposes.

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Patent holders can, however, pursue a remedy against print shops that fill 3D printing orders, including those filled for private individuals.

4.2 Indirect infringement

Under most patent laws, patent holders can seek out remedies for indirect infringement against those who supply means that enable their patent to be infringed. These “means” have to qualify as an “essential element” of the invention, in order to be infringing. It is likely but yet uncertain whether a CAD file would be considered such a “means”.

The question of whether supplying CAD files constitutes indirect infringement is expected to be a pressing one for patent holders who want to take action against CAD file suppliers that can be used to infringe upon their patents. Business is booming for CAD file suppliers, which means that the legal uncertainty surrounding this topical issue could further hinder development of the 3D printing industry. For patent holders it is therefore imperative to be able to invoke other IP rights, like copyrights, as well.

5. Design rights

5.1 Private use

A design is defined as “*the appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colors, shape, texture and/or materials of the product itself and/or its ornamentation*”. Designs are not protected insofar as their appearance

is solely determined by their technical function.

Again, holders of design rights have no remedy against those who print their model “*for their private use and not for commercial purposes*”. Neither the law nor the legislative history clarify the extent to which a print shop is permitted to make, at a private individual’s request, a 3D printout of an object protected by design rights.

5.2 Repair parts

Interestingly enough, holders of design rights also have no remedy against the printing of certain “*spare parts*” or “*repair parts*”. Any party is, in principle, allowed to make a 3D printout of such a repair part for a design right protected object, provided that the manufacturer of the repair part imitates the original product, “*so as to restore to its original appearance*”.

A (commercial) party printing upon request would be entitled to invoke the spare parts exception as well. However, as pointed out, a spare part created by a 3D printer would have to look the same as the original part. The question that arises here, of course, is whether a contractor is always in the position to determine whether this requirement has been met. So once again it is essential for the contractor to shift the liability for possible infringement to its assignor by means of waivers and disclaimers specifically targeted at this situation.

5.3 Indirect infringement

Design rights might not always offer a remedy against parties who supply infringing CAD files. The design rights legislation has not yet followed the patent law example of implementing an indirect infringement provision that would provide design right holders to institute proceedings relating to infringing CAD files. For design rights holders it is therefore imperative to be able to invoke other IP rights, such as copyrights, as well.

6. Trademark law

A trademark is defined as a recognizable sign, design, or expression which identifies products or services of a particular source from those of others. A trademark can consist not only of a name or logo, but can also be a specific color, shape, smell or sound, provided that these features identify the source of the product or service. Proprietary rights in relation to a trademark can be established through registration of the trademark with the trademark office.

Just like with other IP rights, 3D printed objects could infringe on registered trademarks. This risk becomes even bigger when printing for third parties. As pointed out before, it is essential to have legally-binding General Conditions and other contractual provisions in place, by means of which liability for infringement is shifted from the contractor to the assignor.

Trademark law permits private individuals to make private use of 3D printouts of trademarked products, print outs of individual trademarks, or CAD files containing such material. Such printing for commercial purposes is prohibited.

It could be contended that intermediaries such as online platforms that supply CAD files do not infringe on trademark rights because they do not use the mark themselves. Naturally, the interpretation would be different for intermediaries whose role goes beyond simply facilitating the exchange of CAD files.

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It is not unthinkable that trademark holders could incur harm or loss as a result of poor-quality CAD files and/or printed materials being released on the market. This would harm the brand’s reputation, sometimes while leaving the holder of the corresponding trademark rights bereft of any remedy. Trademark holders themselves should take timely action and structure their business models in such a way that makes them as resistant as possible to the ever-progressing state of the art. One example of such a structure would be developing high-quality CAD files and

licensing them in exchange for reasonable fees.

7. Product liability

7.1 Existing legislation not always applicable

3D printing has the potential to turn the home printing consumer into a semi-professional manufacturer. Many countries have adopted legislation imposing a strict liability regime on manufacturers. Product liability typically refers to a manufacturer or seller being held liable for placing a defective product into the hands of a consumer. All parties in the production and distribution chain that qualify as 'producer' can be liable without fault. The advent of 3D printing has blurred the traditional boundaries between 'producers' and 'consumers' and has given rise to liability issues for which the European product liability regime does not always provide solutions.

For example, who should be considered the 'producer'? Will this be the supplier and/or manufacturer of the 3D printer, the CAD file designer, the producer of the raw materials, the print shop and/or the consumer who prints the object in question? The answer to this question depends heavily on the circumstances and is therefore not always entirely clear.

"This means it is essential for the parties involved to limit their risks as much as possible through contractual provisions."

Another question regards the extent to which the various parties bear responsibility. A product may in fact not be safe enough, and may therefore be defective, because the producer has failed to provide sufficient instructions for use or warnings of the risks associated with the use of the product. For example,

A further question is whether CAD files fall within the scope of the product liability regime, which would entail the qualification of CAD files as products – a qualification regarding which no guidance has yet been provided.

The premise of the European directive upon which product liability is based seems irreconcilable with the new reality of 3D printing. The premise at that time was that only producers (manufacturers) could "*influence a product's quality*" and that manufacturers could factor the costs associated with increased product safety and higher insurance premiums into the price of the relevant products. A situation in which consumers would sell objects they have manufactured at home using a 3D printer, or which they would have a print shop manufacture the same way, is clearly different from the one on which that premise is based. Consequently, the question regarding the reasonable allocation of risks must be reconsidered.

7.2 Minimizing risks

Since it will be some time before new regulations are issued, the extent of the responsibilities and obligations the various 3D printing parties will

bear will have to be determined by case law. This means it is essential for the parties involved to limit their risks as much as possible through contractual provisions. Commercial parties, however, cannot contractually exclude or restrict their liability to consumers, although such contractual exclusions or restrictions may indeed be possible under certain circumstances with regard to other professional parties.

Professional parties can limit certain risks by imposing conditions on consumers, such as the types and quality of the raw materials the latter must use. They can also impose detailed requirements on purchasers (and the purchasers' purchasers by means of a perpetual clause) with regard to the use, presentation and instructions that must be provided to the purchaser of the product.

The many uncertain factors on which manufacturers have very limited influence and the potentially enormous risks currently have insurance companies scrambling to formulate appropriate terms and conditions. In any case, it is crucial that companies that use (or wish to use) 3D printers notify their insurers of this fact in order to ensure that they will have proper coverage for any possible cases that may arise in relation to those printers.

8. Other legal issues

Besides the IP and product liability aspects, other legal issues might play a role as regards 3D printing.

The safety and security issues in relation to 3D printing are a much debated topic. In 2012, when the U.S.-based group Defense Distributed announced to design and publish a working plastic gun that could be downloaded and reproduced by anyone with a 3D printer, many parties expressed their concerns. Now, a few years later, 3D printed gun (parts) appear every once in a while, which led to the first person getting arrested for the possession of 3D printed guns in May last year.

Over the course of the past few years a few other safety and security related issues have occurred, among other pertaining to the printing of weapons, keys for police handcuffs, military material, medication or illegal drugs, or other undesirable products.

Legal issues relating to environmental aspects, material safety, labor law, etc. could occur as well. Furthermore, all kind of contractual issues between the different players in the 3D printing chain may arise.

Lastly, when active in certain fields, such as aerospace, dental or the medical field, specific regulations, norms and standards could apply. At the moment hardly any norms and standards specifically tailored to 3D printing are available. This forms a potential risk, as it can be unclear what standards should be adhered to.

It is advisable to always seek the advice of a specialized lawyer before entering markets in which specific regulations and standards may apply.

9. About De Clercq

De Clercq is a mid-size lawfirm with offices in Leiden and Den Haag, the Netherlands. De Clercq has been representing the interests of businesses, institutions and private individuals for more than 160 years. Despite its old roots, De Clercq is always keeping conscious of the present times with its strong focus on new technology related legal issues.

The IT law team of De Clercq consists of five specialists, who assist their clients with a combination of thorough legal knowledge and a deep understanding of new technologies. De Clercq's IT attorneys have in-depth knowledge and cutting edge experience in the field of IP rights and IT related legal issues, which among others includes the drafting of specific IT contracts, advice on privacy and security issues, and litigation over failed IT projects.

De Clercq was one of the first law firms to recognize and address legal questions regarding 3D printing. As a 'first mover', De Clercq has earned its place as a well-respected legal advisor in this field.

Having proactive advice and using 3D print specific contracts as well as tailored general terms and

conditions, can prevent legal disputes from arising. Unfortunately there is always a possibility that they will occur. When these disputes arise, the IT-lawyers of De Clercq, who have acquired much experience in litigation in the field of IT, IP and privacy law, arbitration and mediation, will be there to guide you.

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